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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/496,374	02/02/2000	Masami Kidono	OOCL-11 (11P024627)	6123

26479 7590 12/13/2001

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EXAMINER

PIZIALI, JEFFREY J

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 12/13/2001

5

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/496,374	Applicant(s) KIDONO ET AL.	
	Examiner Jeff Piziali	Art Unit 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Drawings

1. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required if the application is allowed.
2. Figures 6 and 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 1 is objected to because of the following informalities: Line 21 should substitute "reduce number" with "reduce the number." Appropriate correction is required.
4. Claim 2 is objected to because of the following informalities: Lines 20-21 should substitute "reduce number" with "reduce the number." Appropriate correction is required.
5. Claim 4 is objected to because of the following informalities: Line 15 should substitute "belong" with "belonging." Line 18 should substitute "reduce number" with "reduce the number." Appropriate correction is required.

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6. Claim 5 is objected to because of the following informalities: Line 15 should substitute "belong" with "belonging." Line 18 should substitute "reduce number" with "reduce the number." Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1-9 are rejected under 35 U.S.C. 102(a) as being anticipated by the current application's own admitted prior art.

Regarding claim 1, the background of the current invention discloses a solid-state imaging device comprising: a pixel unit [Fig. 7, 1] constituted by a two-dimensional array of pixels for generating charge in correspondence to received light and accumulating the charge for a predetermined period of time; a vertical transfer unit [Fig. 7, 2] for vertically transferring charge from the pixels in the pixel unit; a horizontal transfer unit for horizontally transferring charge from the vertical transfer unit; shift gates [Fig. 7, 3] each provided between each pixel and the vertical transfer unit for reading out the charge in the pixels to the vertical transfer unit, gate electrodes [Fig. 7, 4A] for controlling the shift gates; and a plurality of lead lines [Fig. 7, 4B] and a plurality of connection terminals [Fig. 7, 6] for connecting the gate electrodes to an external circuit [Fig. 7, 5]; the gate electrodes within successive pixel rows belonging to each coset of modulo 16 ($N = 16$ being a predetermined natural number between 4 and one half the

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number of pixels [with the number of pixels ≥ 32] in a column) being combined with 16 gate electrode groups to reduce the number of the external connection terminals (see Page 2, Line 15 - Page 5, Line 6; wherein the number of external connection terminals has been reduced to 16, as opposed to utilizing a separate external connection terminal for each individual gate electrode).

Regarding claim 2, this claim is rejected under the reasoning applied in the above rejection of claim 1; furthermore, the background of the current invention discloses gate electrodes/gate control lines [Fig. 7, 4A] within successive pixel rows belonging to each coset of modulo 16 being combined with each other so as to reduce the number of the external connection terminals (see Page 2, Line 15 - Page 5, Line 6; wherein the number of external connection terminals has been reduced to 16, rather than utilizing a separate external connection terminal for each individual gate electrode).

Regarding claim 3, this claim is rejected under the reasoning applied in the above rejection of claim 1; furthermore, the background of the current invention discloses the gate electrodes being provided in a predetermined number 32 ($N = 32$ being a predetermined natural number between 4 and one half the number of pixels [with the number of pixels = 64] in a column) of gate electrode groups such that the horizontal line number of the gate electrode groups which are connected to respective common lead lines belong to each same residue class of modulo 32, some of the gate electrode groups being commonly connected so that the external connection terminals are less in number than 32 (see Page 2, Line 15 - Page 5, Line 6; wherein

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there are provided 16 external connection terminals for 32 gate electrode groups of 2 pixels each, for a grand total of 64 pixels).

Regarding claim 4, this claim is rejected under the reasoning applied in the above rejection of claim 1; furthermore, the background of the current invention discloses the commonly connected gate electrode groups are always controlled in the same way in each of all predetermined read-out modes including selective pixel read-out modes by selective shift gate driving (see Fig. 7; Page 4, Line 8 - Page 5, Line 6).

Regarding claim 5, this claim is rejected under the reasoning applied in the above rejection of claims 1, 2 and 4.

Regarding claim 6, this claim is rejected under the reasoning applied in the above rejection of claims 1, 3 and 4.

Regarding claims 7-9, the background of the current invention discloses gate electrode groups controlled in each of all the predetermined read-out modes are set such as to provide a minimum number of connection terminals for connecting the gate electrodes to an external circuit (see Fig. 7; Page 4, Line 8 - Page 5, Line 6; wherein 16 connection terminals is the minimum for this particular display device).

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 2, 3, 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claim 2 recites the limitation "gate control lines" in line 17. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 3 recites the limitation "connection electrodes" in line 24. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 5 recites the limitation "gate control lines" in line 14. There is insufficient antecedent basis for this limitation in the claim.

14. Claim 6 recites the limitation "connection electrodes" in lines 21-22. There is insufficient antecedent basis for this limitation in the claim.

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Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Eino (US 4,803,562), Tanaka et al. (US 5,757,423), Takayuki et al. (JP 10-136,244) and Toshikazu et al. (JP 10-150,601) are cited to further evidence the state of the art pertaining to solid state imaging devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (703) 305-8382. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

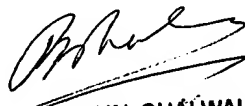
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



J.P.

December 10, 2001



BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600